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Woodall

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(54) **SPATIAL IMAGE PROCESSOR**

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(57) **ABSTRACT**

A spatial image processor neural network for processing image data to discriminate between first and second spatial configurations of component objects includes a photo transducer input array for converting an input image to pixel data and sending the data to a localized gain network (LGN) module, a parallel memory processor and neuron array for receiving the pixel data and processing the pixel data into component recognition vectors and chaotic oscillators for receiving the recognition vectors and sending feedback data to the LGN module as attention activations. The network further includes a temporal spatial retina for receiving both the pixel data and temporal feedback activations and generating temporal spatial vectors, which are processed by a temporal parallel processor into temporal component recognition vectors. A spatial recognition vector array receives the temporal component recognition vectors and forms an object representation of the first configuration of component objects.

17 Claims, 29 Drawing Sheets